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Prevalence of drink-driving among adults in China: A nationally representative survey in 2010

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Abstract

Objective—We examined the prevalence of and characteristics associated with drink-driving in China. We compared this study's drink-driving findings with those from the United States to explore how effective traffic safety interventions from Western cultures might be adapted for use in China.

Methods—Data from the 2010 China Chronic Disease and Risk Factor Survey were analyzed to describe the prevalence and characteristics associated with drink-driving in China.

Results—Overall, 1.5% of Chinese adults reported drink-driving in the past 30 days—3% of males and 0.1% of females. However, among males who had driven a vehicle in the past 30 days and consumed at least one alcoholic beverage in the past 30 days, 19% reported drink-driving during the 30-day period. Excessive drinking, binge drinking, nonuse of seat belts, and having been injured in a road traffic crash in the past year were most strongly associated with drink-driving among males.

Conclusions—Drink-driving is prevalent among male drivers in China. Although large differences exist between China and the United States in the proportion of adults who drive, the proportion who consume alcohol, and some of the personal characteristics of those who drink and drive, similarities between the 2 countries are present in patterns of risk behaviors among drink-driving. To reduce injuries and deaths from drink-driving, effective interventions from Western cultures need to be tailored for adoption in China.

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Keywords

Automobile driving; alcohol-impaired driving; drink-driving; alcohol drinking; risk factors; China

Road traffic injuries (RTIs) are a leading cause of disability and death in China (J. Zhou et al. 2014). The Traffic Management Bureau of the Ministry of Public Security estimated that deaths from vehicle collisions increased 75-fold from 852 in 1951 to 65,225 in 2010 (Traffic Administration Bureau of the Ministry of Public Security of People's Republic of China [PRC] 2010). According to the World Health Organization, China's 2013 road fatality rate of 18.8 per 100,000 population was similar to rates of 5 nearby countries of Bhutan, Burma, Cambodia, India, and Russia (range 15.1 to 20.3 per 100,000 population), below rates in Vietnam and Thailand (24.5 and 36.2 per 100,000 population, respectively) and well above Japan's rate of 4.7 per 100,000 population (World Health Organization 2015). According to China's Disease Surveillance Points, a nationally representative morbidity and mortality surveillance system, RTIs have been the leading cause of injury deaths since 2000 and the leading cause of death from all causes for persons aged 15–44 years (Chinese Center for Disease Control and Prevention 2010; Yang 2005). RTI deaths in China have resulted in nearly 25% of all productive years of life lost from all injuries (Y. Zhou et al. 2003).

China's rapid increase in motor vehicle travel has contributed to its escalating incidence of RTIs. Motor vehicle ownership in China increased from 108 million vehicles in 2004 to 207 million units in 2010, an annual growth rate of 11%, which was more than China's gross domestic product growth rate during the same period (Highway Research Institute of the Ministry of Transport of PRC 2011). In addition, the potential risk of RTI in China is substantial; China has the second most expressway miles driven in the world (Highway Research Institute of the Ministry of Transport of PRC 2011). Further contributing to China's increasing RTI burden are both macro-and microlevel factors, such as inadequate safety standards in road construction and safety legislation, driver inexperience, excessive speed, nonuse of seat belts and child safety seats, and driving a motor vehicle while under the influence of alcohol (i.e., "drink-driving"; Liu et al. 2005; Y. Zhou et al. 2003).

Drink-driving increases both the risk of a crash and the likelihood of death or serious injury, especially once a blood alcohol concentration (BAC) reaches 0.04 g/dL (World Health Organization 2007). Recent findings from the United States estimate that drivers with a BAC of 0.05–0.079 g/dL are 4 to 6 times more likely to be in a fatal crash than sober drivers of the same age, and the risk continues to increase proportionally with rising BAC levels (Voas et al. 2012). In China, recent studies show that excessive drinking and binge drinking behaviors are common among current drinkers (Li et al. 2011). For example, 63% of males in China who drink report excessive drinking (consuming >25 g of pure alcohol), and 57% report binge drinking (consuming >50 g of pure alcohol on at least one day in the previous 12 months; Li et al. 2011). These drinking patterns, combined with rapid increases in the use of motor vehicles, raise concerns about preventable deaths and injuries caused by drink-driving.

There are no recent national level statistics on the prevalence of drink-driving in China. In 2002, the Chinese Behaviour Risk Factor Survey estimated that 13.2% of drivers had

engaged in drink-driving in the past 30 days (Liu et al. 2005). This estimate was collected before the enactment of the law on Road Traffic Safety in 2004, which strengthened laws and regulations against drink-driving. In 2006–2007, random alcohol breath tests for drink-driving in the 2 southern cities of Nanning and Liuzhou in Guangxi Province found that nearly 5% of the drivers were over the minimum legal BAC limit of 0.02 g/dL, and an average of 34% of traffic crashes were related to alcohol (Li et al. 2012). In a 2011–2013 study of traffic fatalities in Shandong Province, Wang and colleagues (2015) estimated that the proportion of all fatalities attributed to drink-driving was between 18 and 27%.

To help address road traffic injuries as an emerging public health issue, the National Center for Chronic and Noncommunicable Disease Control and Prevention, China Center for Disease Control and Prevention (China CDC) collected data in the China Chronic Disease and Risk Factor Survey (CCDRFS) on drink-driving and alcohol consumption. The purpose of this study is to describe the prevalence of and characteristics associated with drink-driving among adults aged 18 years and older in China by analysing data from the 2010 CCDRFS. We compared the study findings with drink-driving information from the United States to help inform how effective traffic safety interventions from Western cultures might be adapted for use in China.

Methods

Overview of the surveillance system

The CCDRFS is a surveillance system administered by the National Center for Chronic and Noncommunicable Disease Control and Prevention, China CDC. Since 2004, the CCDRFS has been conducted every 3 years. The 2010 CCDRFS included face-to-face interviews, physical measurements, and collection of laboratory samples in a nationally representative sample of 162 sites between August and October. The sampled sites were stratified by geographic region, local gross domestic product, proportion of rural dwellers, and total population of local areas through a multistage cluster probability sampling approach. The sample included 97 rural counties, 64 urban districts, and one construction corps site and covered 73 million residents, approximately 6% of the total Chinese population (M. G. Zhou et al. 2010).

China CDC’s ethics committee approved the 2010 CCDRFS protocol and each participant provided written consent to participate in the interview. The U.S. Centers for Disease Control and Prevention determined that this data collection was part of routine injury surveillance activities and did not constitute human subjects research. Thus, human subjects regulations did not apply.

Sampling

Participants were selected through a multistage stratified clustering sampling method. In the first stage of sampling, 4 townships were randomly sampled from each surveillance point. Next, 3 villages or residential areas were randomly sampled from each selected township. Finally, a residential group (at least 50 families) from each village and an individual at least 18 years of age from each family was selected using a KISH grid method (Kish 1965). The

anticipated sample size was 97,200 (162 sites × 4 townships × 3 villages × 50 families = 97,200).

Outcome variable

Drink-driving was assessed using 2 questions. First, respondents were asked whether they had driven a motor vehicle in the past 30 days. Respondents who answered “yes” were then asked whether they had driven after drinking alcohol (any alcohol consumption) at least once in the past 30 days. Respondents who answered “yes” were considered positive for drink-driving.

Covariates

Researchers assessed alcohol consumption by asking: “Have you consumed any alcohol within the past 12 months?” The 3 options were “yes, in the past 30 days,” “yes, before the past 30 days,” and “no.”

Among respondents who consumed alcohol in the past 12 months, patterns of drinking were further defined. Annual drinking frequency was categorized as less than once per month, 1–3 days per month, 1–4 days per week, or 5–7 days per week. Drinking 5–7 days per week was considered a frequent drinker. Excessive drinking was defined as consuming more than 25 g of pure alcohol per drinking day for men and more than 15 g per drinking day for women throughout the year. Binge drinking was defined as consuming more than 50 g of pure alcohol for men and more than 40 g for women on at least 1 day in the previous 12 months. Researchers also collected demographic factors, cigarette smoking behaviors, seat belt use while driving, driver license status, and history of sustaining a RTI or other type of injury in the past 12 months (Li et al. 2011).

Statistical analysis

Weights were applied to estimates to obtain nationally representative estimates based on the surveillance sampling scheme and made poststratification adjustments for age and sex using 2009 Chinese population estimates from the National Bureau of Statistics. First, we calculated population-based estimates of male and female adults in China who had consumed alcohol in the past 30 days, driven in the past 30 days, separately driven and consumed alcohol in the past 30 days, and those who reported drink-driving in the past 30 days. The remaining analyses were restricted to only drivers because most adults in China had not driven in the past 30 days. We calculated the percentages of drivers who reported drink-driving, stratified by the individual characteristics of interest. Lastly, we conducted bivariate and multivariate log-linear regression to explore the independent association between drink-driving and these characteristics among male drivers who consumed alcohol in the past 30 days. Females were excluded from these analyses because only 25 females reported drink-driving behaviors. Additionally, to improve the precision of the effect estimates, we restricted the analysis to only those males who could possibly have experienced drink-driving—those who had separately driven and consumed alcohol in the past 30 days. Log-linear regression was used to allow for the direct estimation of rate ratios. All analyses were conducted in Stata version 12.1.

Results

In the 2010 CCDRFS, 109,023 people were recruited and 98,658 people participated in the survey, for an overall response rate of 90.5%. After excluding observations with missing values for key variables and replicated observations, 98,254 respondents (90%) were included in the final analyses. Fifty-four percent of respondents were female. Adults aged 18–44 years (N = 45,177) accounted for 46% of the study sample, and those aged 45–59 years (N = 53,077) accounted for an additional 34% of the sample.

Sixteen percent of all respondents reported driving a motor vehicle in the past 30 days—27% of males and 5% of females (Table 1). Eight percent of all respondents had separately driven and consumed alcohol in past 30 days—15% of males and less than 1% of females. Overall, an estimated 1.5% of the adult Chinese population reported drink-driving in the past 30 days—3% of males and 0.1% of females. Among those who drove at least once in the past 30 days, 10% reported drink-driving—11% of males and 1.3% of females. Among those who separately reported consuming alcohol and driving at least once in the past 30 days, 18% reported drink-driving—19% of males and 7% of females.

Drink-driving among male and female drivers

Drink-driving was significantly more prevalent among married or cohabiting male drivers than their single counterparts (12 vs. 7%; Table 2). Drink-driving was also more prevalent among both male and female drivers who reported smoking cigarettes, frequent drinking, excessive drinking, or binge drinking than their counterparts who did not report such behaviors. Male drivers who rarely or never wore their seat belts reported higher proportions of drink-driving than their counterparts who usually wore their seat belts. Lastly, drivers who had sustained an injury (either an RTI or a non-RTI) in the past 12 months reported higher proportions of drink-driving compared to those who had not sustained an injury.

Risk of drink-driving among male drivers who consumed alcohol in the past 30 days

Among male drivers who consumed alcohol, excessive drinking (adjusted prevalence ratio [APR] = 1.6, 95% confidence interval [CI], 1.4–1.9), binge drinking (APR = 1.5, 95% CI, 1.2–1.8), never or rarely wearing a seat belt (APR = 1.9, 95% CI, 1.5–2.3 and APR = 1.7, 95% CI, 1.3–2.1, respectively), and having sustained a traffic injury in the past year (APR = 1.6, 95% CI, 1.2–2.2) were most strongly associated with drink-driving (Table 3). Married or cohabitating men (APR = 1.6, 95% CI, 1.0–2.4) and men who were separated, divorced, or widowed (APR = 1.6, 95% CI, 1.0–2.8) appeared to be more likely to drink and drive than single men; however, the 95% CIs included 1.0. There was a weak association between drink-driving and education: men who completed high school or some college (APR = 1.2, 95% CI, 1.1–1.4) and men with a college degree or postgraduate experience (APR = 1.3, 95% CI, 1.1–1.7) were slightly more likely to drink and drive than their counterparts who did not complete high school. Age, income, and employment status were not independently associated with drink-driving.

Discussion

Drink-driving remains prevalent among Chinese drivers, with 10% of adult drivers reporting the behavior at least once in the past 30 days in 2010. Males accounted for the overwhelming majority of drink-driving; 11% of male drivers and 1.3% of female drivers reported the behavior. Furthermore, among males who had separately driven a vehicle and consumed at least one alcoholic beverage in the past 30 days, 19% reported drink-driving during the 30-day period. The need to further strengthen effective approaches to reduce drink-driving in China is urgent, especially as more Chinese begin driving. Below, we compare findings from the current study with those from the United States to help inform how effective traffic safety interventions from Western cultures might be adapted for use in China. Although differences exist between China and the United States in the proportion of adults who drive, the proportion who consume alcohol, and some of the personal characteristics of those who drink and drive, similarities are present in the patterns of risk behaviors among drink-driving adults.

In China, drink-driving prevention campaigns must be appropriately tailored to the populations most at risk. A small proportion of the Chinese population consumes alcohol, and an even smaller proportion drives compared with the United States. According to the National Health Interview Survey (Blackwell et al. 2014), 60% of adult males in the United States consume alcohol—approximately 12 percentage points higher than China. Even more dramatic, 44% of adult women in the United States consume alcohol, approximately 5 times greater than their counterparts in China. Whereas 84% of persons eligible for licensure in the United States have a driver's license (Federal Highway Administration 2014), only about a quarter of adult males in China have driven a motor vehicle in the past month and only 5% of females have. Comparatively, women make up more than 50% of drivers in the United States (Sivak 2013). Therefore, drink-driving prevention interventions and communication campaigns in China should incorporate appropriate audience segmentation strategies and adaptation to effectively address behaviors of select segments of the population (Maibach et al. 1996).

We found that self-reported drink-driving among Chinese males was essentially stable across age groups. This pattern differs from that seen in the United States where young adult males are more likely to drink and drive (Centers for Disease Control and Prevention [CDC] 2011). The NHTSA designs mass media messages to target 18- to 25-year-olds because this group has the highest risk of drink-driving in the United States (Williszowski et al. 1998). In China, such messages should be tailored to a broader age segment of the male population, as well as framed in a context that is culturally and socially appropriate.

As for social determinants, being single in China may be protective for males in terms of drink-driving, whereas in the United States, single males report more drink-driving than their married counterparts (CDC 2011). In additon, different income levels do not seem to be predictive of drink-driving in China, at least among male adults who drive, as they do in the United States (CDC 2011). This may due to different social norms around alcohol consumption. In China, alcohol is widely recognized as an important tool for social contact to enhance relationships with business partners or friends (Li et al. 2011).

According to our data, self-reported drink-driving prevalence was similar between rural and urban road users in China, although a separate study indicated that drink-drinking rates may be higher in rural areas due to a lack of enforcement (Yang 2005). In comparison, a preliminary analysis of the United States' 2007 National Roadside Survey found that 12% of both urban and rural drivers reported drink-driving in the past year. Urban drivers who had their BAC tested were more likely than their rural counterparts to have BACs of 0.005–0.079 g/dL, but no significant difference existed between rural and urban drivers for BACs of ≥0.08 g/dL (Ruth A. Shults, Centers for Disease Control and Prevention, personal communication, March 4, 2016). The National Roadside Survey findings are generally consistent with alcohol-impaired traffic fatality data in the United States. In 2013, an equal proportion of all fatalities occurring in urban and rural areas involved an alcohol-impaired driver (31%; NHTSA 2015).

Chinese men who reported drink-driving were more likely to report binge drinking and inconsistent seat belt use. Similar results have been reported in the United States (Bergen et al. 2012; Boyd et al. 2008). Because these risk behaviors tend to cluster, interventions that are known to reduce binge drinking might also reduce drink-driving, and interventions to increase seat belt use might reduce injuries and deaths in drink-driving crashes. Examples include policies that limit hours when alcohol can be sold (Community Preventive Services Task Force 2015b) and primary enforcement seat belt laws, which permit law enforcement officers to stop a motorist and issue a citation solely because an occupant is unbelted (Community Preventive Services Task Force 2015a). In addition, health care providers could screen for excessive alcohol use during emergency department or routine visits and refer those who screen positive to appropriate levels of treatment (National Institute on Alcohol Abuse and Alcoholism 2007).

Reducing drink-driving in China

Much progress was made during the last decade to encourage a reduction in drink-driving in China. First, the State Council of the People's Republic of China (the highest executive organ of state power and the highest organ of state administration) established the National Inter-ministerial Joint Conference (herein referred as "the joint conference") on road traffic safety to strengthen supervision and enforcement of road safety in 2003 (State Council Bulletin 2003). Fifteen ministries participate in this multisectoral cooperation. First, the Ministry of Public Security was appointed as the lead body of the joint conference—a group that is responsible for documenting the status quo of national road traffic safety, mapping out middle- and long-term and relevant policies, and comprehensively coordinating road traffic safety work nationwide (Highway Research Institute of the Ministry of Transport of PRC 2011). Second, laws and regulations against drink-driving were enhanced. The national Law on Road Traffic Safety was enacted on May 1, 2004. This legislation sets 2 BAC limits that are comparable with international standards. It prescribes that when a driver's BAC is ≥0.02 g/dL and ≤0.08 g/dL, it is considered drink-driving; when a driver's BAC is >0.08 g/dL, it is considered drunk driving. Both drink-driving and drunk driving are illegal and carry different penalties. For drink-driving, the guilty party must temporarily relinquish his driver's license for a period of 1–3 months and pay a fine between 200 and 500 RMB. For drunk driving, the driver is retained by the traffic administrative department of the public

security until he or she becomes sober. He may be detained for up to 15 days, required to relinquish his driver's license for 3–6 months, and pay a fine between 500 and 2,000 RMB. Beginning on May 1, 2011, Chinese law mandated a penal detention up to 6 months for any person convicted of drunk driving, which is considered a criminal punishment (National People's Congress Bulletin 2011). Next, China established a formal ban on alcohol sales to persons under age 18. Prior to 2007, China had no formal ban on alcohol sales to youth (Reuters 2006). Finally, with the increasing popularity of auto culture and the development of various campaigns against drink-driving, perceived risk and support for anti-drink-driving is increasing among the general population (Highway Research Institute of the Ministry of Transport of PRC 2011). This development may pave the way for future national and subnational risk communication campaigns that address the dangers of excessive alcohol use and driving and encourage safe driving behaviors.

Many challenges remain for reducing drink-driving in China. Data on road traffic injuries are housed in multiple agencies in China. Greater multisector collaboration would promote the integration and strengthening of data systems for a more comprehensive description of road traffic injuries, enforcement, and the effectiveness of strategies for addressing drink-driving (Ma et al. 2012). A more strategic and consistent approach at the national level could raise awareness and facilitate collaboration across public safety, public health, health care, commerce, and the private sector, including media, businesses that teach individuals to drive, and restaurants and other businesses that serve alcohol (Disease Control and Prevention Bureau of Ministry of Health 2007). Such collaboration could lead to stronger prevention strategies and enforcement of laws at the national, provincial, and community levels and encourage the development of policies and programs to reduce road traffic injuries resulting from drink-driving.

Limitations

This study has several limitations. First, drink-driving is illegal, so self-reports might be underestimated. In addition, drink-driving is defined as driving after drinking alcohol (any alcohol consumption) at least once in the past 30 days, which requires a subjective judgment by respondents and could include drivers with BACs below the legal limit. However, 83% (95% CI, 80–86%) of respondents who reported drink-driving also reported binge drinking in the past 30 days. Third, according to the sample design, the survey is nationally representative, so the data cannot be used to estimate provincial prevalence. Finally, CCDRFS surveys only those aged ≥18 years, so drink-driving behaviors of younger persons are not included.

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Table 1

Number and estimated weighted percentage of China residents aged ≥18 years who reported driving, separately driving and consuming alcohol, and drink-driving in the past 30 days, by sex, China Chronic Disease and Risk Factor Survey, 2010 (unweighted $N = 98,254$).

	Total		Males		Females	
Persons who drove	**Sample number**	**WGT%* all survey respondents (95% CI)**	**Sample number**	**WGT% all male survey respondents (95% CI)**	**Sample number**	**WGT% all female survey respondents (95% CI)**
	13,000	16 (14–17)	10,966	27 (25–29)	2,034	5 (4–5)
Consumed alcohol	6,702	8 (7–9)	6,298	15 (14–17)	404	0.8 (0.6–1.0)
Reported drink-driving	1,220	1.5 (1.3–1.8)	1,195	3(2–3)	25[a]	0.1 (0.03–0.1)
	Sample number	WGT% all drivers	Sample number	WGT% male drivers	Sample number	WGT% female drivers
Reported drink-driving	1,220	10 (8–11)	1,195	11 (10–13)	25[a]	1.3 (0.7–2)
	Sample number	WGT% all drivers who consumed alcohol	Sample number	WGT% male drivers who consumed alcohol	Sample number	WGT% female drivers who consumed alcohol
Reported drink-driving	1,220	18 (16–20)	1,195	19 (17–21)	25[a]	7 (4–12)

[a]Estimates for female drivers are unstable because of the small sample size. Use with caution.

*WGT% = weighted percentage.

Table 2

Estimated weighted percentage of Chinese drivers aged ≥18 years who reported drink-driving in the past 30 days, by sex and other characteristics, China Chronic Disease and Risk Factor Survey, 2010 (unweighted N = 13,000).

	Total drivers % (95% CI)	Male drivers % (95% CI)	Female drivers[a] % (95% CI)
Age (years)			
18–24	7 (5–10)	9 (6–12)	1.3 (0.3–5.4)
25–34	9 (8–10)	10 (9–12)	1.2 (0.6–2.7)
35–54	11 (9–13)	12 (10–14)	1.1 (0.5–2.3)
≥55	9 (7–12)	10 (8–13)	5 (1–25)
Education			
Some high school or less	9 (8–10)	10 (9–12)	1.3 (0.6–2.6)
HS or some college	10 (9–13)	12 (10–14)	0.8 (0.3–2.1)
College graduate and above	10 (8–13)	13 (11–17)	1.6 (0.7–3.5)
Marital status			
Single	6 (4–7)	7 (5–9)	0.5 (0.1–3.7)
Married or cohabiting	10 (9–12)	12 (10–13)	1.3 (0.8–2.2)
Separated/divorced/widowed	11 (7–16)	12 (8–18)	4 (1–12)
Location (village level)			
Rural	10 (8–12)	11 (9–13)	1 (1–3)
Urban	9 (8–10)	11 (9–12)	1 (1–2)
Income (RMB, in quartiles)			
Don’t know/not sure/refused	7 (5–9)	8 (6–11)	1.3 (0.4–4.2)
Q1 (0–12,000)	10 (8–13)	11 (9–15)	0.3 (0.05–0.1)
Q2 (12,500–24,000)	11 (9–13)	12 (10–14)	2 (0.7–5.6)
Q3 (24,500–42,000)	10 (8–12)	12 (10–14)	1 (0.3–2.9)
Q4 (43,000–1,200,000)	9 (8–11)	11 (9–13)	1.5 (0.6–3.8)
Race			
Minority	10 (7–15)	12 (7–18)	1 (0.5–2.0)
Han nationality	10 (8–11)	11 (9–13)	1.3 (0.8–2.1)
Tobacco use status			
Never smoker	5 (4–6)	7 (6–8)	0.9 (0.5–1.7)
Ex-smoker	11 (9–15)	11 (9–15)	0.3 (0.04–2.1)
Current smoker	13 (12–15)	13 (12–15)	13 (6–25)
Employed			
No	8 (5–12)	9 (6–14)	3 (1–10)
Yes	10 (8–11)	11 (10–13)	1 (1–2)
Frequent drinking			
No	7 (6–8)	8 (7–10)	1 (0.6–1.8)
Yes	26 (22–30)	26 (22–30)	31 (12–61)
Excessive drinking			

	Total drivers % (95% CI)	Male drivers % (95% CI)	Female drivers[a] % (95% CI)
No	6 (5–7)	7 (6–8)	0.7 (0.3–1.3)
Yes	28 (25–31)	28 (25–31)	31 (15–53)
Binge drinking			
No	3 (2–3)	3 (2–4)	0.5 (0.2–1.3)
Yes	21 (19–24)	22 (19–24)	9 (5–18)
Seat belt use when driving			
Usually	7 (6–8)	8 (6–10)	1 (1–3)
Sometimes	8 (6–10)	9 (7–11)	0.4 (0.01–1.8)
Rarely	13 (10–17)	15 (12–19)	2 (1–8)
Never	12 (10–14)	14 (11–16)	1 (1–3)
Driving license			
Yes	9 (8–10)	11 (9–12)	1 (0.5–2)
No	10 (8–13)	12 (10–15)	2 (1–4)
Injury in past 12 mnths			
Yes, traffic injury	16 (11–22)	17 (12–23)	8 (1–39)
Yes, non-traffic injury	17 (12–23)	18 (13–25)	4 (1–15)
No	9 (8–10)	10 (9–12)	1 (0.6–1.8)

[a]Estimates for female drivers are unstable because of the small sample size. Use with caution. *HS = high school.

Table 3

Risk of drink-driving among Chinese male drivers aged ≥18 years who consumed alcohol in the past 30 days, China Chronic Disease and Risk Factor Survey, 2010 (unweighted $N = 6{,}046$).[a]

	Crude PR	95% CI	Adjusted PR[b]	95% CI
Age (years) (18–24 Ref)				
25–34	1.1	(0.9–1.5)	1.0	(0.7–1.4)
35–54	1.2	(0.9–1.6)	0.9	(0.6–1.5)
≥ 55	1.0	(0.7–1.4)	0.8	(0.5–1.2)
Education				
Some high school or less	Ref			
HS or some college	1.1	(1.0–1.3)	**1.2**	(1.1–1.4)
College graduate and above	1.1	(0.9–1.4)	**1.3**	(1.1–1.7)
Marital status				
Single	Ref			
Married/cohabiting	1.6	(1.2–2.0)	1.6	(1.0–2.4)
Separated/divorced/widowed	1.7	(1.1–2.7)	1.6	(1.0–2.8)
Income (RMB, in quartiles)				
Don’t know/not sure/refused	0.7	(0.6–1.0)	0.7	(0.5–1.0)
Q1 (0–12,000)	1.1	(0.9–1.4)	1.0	(0.8–1.3)
Q2 (12,500–24,000)	1.0	(0.9–1.2)	1.0	(0.8–1.1)
Q3 (24,500–42,000)	Ref			
Q4 (43,000–1,200,000)	1.0	(0.8–1.2)	1.0	(0.8–1.2)
Race				
Minority	1.3	(0.9–1.7)	1.1	(0.8–1.5)
Han nationality	Ref			
Tobacco use status				
Current smoker	1.3	(1.1–1.5)	**1.2**	(1.1–1.4)
Ex-smoker	1.2	(1.0–1.6)	1.1	(0.9–1.4)
Never smoker	Ref			
Employed				
Yes	1.2	(0.7–1.8)	1.0	(0.7–1.6)
No	Ref			
Frequent drinking				
Yes	1.6	(1.4–1.9)	1.2	(1.0–1.4)
No	Ref			
Excessive drinking				
Yes	2.0	(1.7–2.2)	**1.6**	(1.4–1.9)
No	Ref			
Binge drinking				
Yes	1.9	(1.6–2.3)	**1.5**	(1.2–1.8)
No	Ref			
Seat belt use when driving				

	Crude PR	95% CI	Adjusted PR[b]	95% CI
Usually	Ref			
Sometimes	1.2	(0.9–1.6)	1.1	(0.9–1.5)
Rarely	2.0	(1.6–2.4)	**1.9**	(1.5–2.3)
Never	1.7	(1.4–2.1)	**1.7**	(1.3–2.1)
Driving license				
Yes	Ref			
No	1.1	(0.9–1.4)	1.1	(0.8–1.3)
Injury in past 12 mnths				
Yes, traffic injury	1.5	(1.1–2.1)	**1.6**	(1.2–2.2)
Yes, non-traffic injury	1.6	(12–22)	1.4	(1.0–1.9)
No	Ref			

[a] N is reduced in the multivariate analysis because of missing data for some covariates.

[b] Each prevalence ratio is adjusted for all other variables in its respective column. Statistically significant adjusted prevalence ratios are in bold type.
*HS = high school.